DEVELOPMENT OF TAGMAN-BASED REAL-TIME POLYMERASE CHAIN REACTION AND RESTRICTION ENZYME ANALYSIS FOR DETECTION AND TYPING OF HUMAN PAPILLOMAVIRUSES

CHAIWAT CHAISOMBOON

MASTER OF SCIENCE

Hy CA

IN MEDICAL TECHNOLOGY

ลิปสิทธิ์มหาวิทยาลัยเชียงใหม่ Copyright[©] by Chiang Mai University All rig htegraduate school erved CHIANG MAI UNIVERSITY

MAY 2008

DEVELOPMENT OF TAGMAN-BASED REAL-TIME POLYMERASE CHAIN REACTION AND RESTRICTION ENZYME ANALYSIS FOR DETECTION AND TYPING OF HUMAN PAPILLOMAVIRUSES

CHAIWAT CHAISOMBOON

6783

A THESIS SUBMITTED TO THE GRADUATE SCHOOL IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN MEDICAL TECHNOLOGY

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่ Copyright[©] by Chiang Mai University All rights reserved

> THE GRADUATE SCHOOL CHIANG MAI UNIVERSITY MAY 2008

DEVELOPMENT OF TAQMAN-BASED REAL-TIME POLYMERASE CHAIN REACTION AND RESTRICTION ENZYME ANALYSIS FOR DETECTION AND TYPING OF HUMAN PAPILLOMAVIRUS

CHAIWAT CHAISOMBOON

THIS THESIS HAS BEEN APPROVED TO BE A PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN MEDICAL TECHNOLOGY

EXAMINING COMMITTEE

ลิขสิท

Copyrig

CHAIRPERSON

Asst. Prof. Dr. Pranee Leechanachai

Mr. Kriangsak Jitvatcharanon, M.D.

Suchart Punjaisce MEMBER

MEMBER C

Asst. Prof. Dr. Suchart Punjaisee

Asst. Prof. Dr. Wasna Sirirungsi

8 May 2008 © Copyright by Chiang Mai University

ACKNOWLEDGEMENT

As the author, I wish to express my sincere gratitude and appreciation to Asst. Prof. Dr. Pranee Leechanachai, the thesis advisor, for accepting me as a master student in her laboratory. Thank you for guiding me into the wonderful field of medical science, for always encouraging me and helping me all the time. Thank you for your support in all kinds of situations: my experiments and my writing. Thank you for proofreading my thesis.

I am also grateful to Doctor Kriangsak Jitvatcharanon, Asst. Prof. Dr. Suchart Punjaisee and Asst. Prof. Dr. Wasna Sirirungsi, examination committee members, for their valuable suggestions and corrections on this thesis.

I also once again thank Doctor Kriangsak Jitvatcharanon from the Sexually Transmitted Infections and AIDS Center 10 Chiang Mai for their excellent advice, valuable suggestions and providing cervical specimens for the study.

I wish to express specially thank that women who permit us to use their samples for this study. This thesis would not have been completed without their kindness. I would also like to thank the physician and staff from the Sexually Transmitted Infections and AIDS Center 10 Chiang Mai for their kindly support and specimen collection.

I thank Lecturer Tanawan Samleerat for her valuable advice as well as guiding me in solving difficult questions. Thank for deeply knowledge about molecular biology and bioinformatics.

In addition I wish to thank Mr. Boonsong Tanjai and all staff members of the Division of Clinical Microbiology, Faculty of Associated Medical Sciences for their advices, nice friendships/collaborations and for a lot of happy hours together.

I really thank the Division of Clinical Microbiology, Faculty of Associated Medical Sciences for support in providing instrument and places for the study to be conducted.

iii

I very thank for the Department of Medical Technology, Faculty of Allied Health Sciences, Naresuan University for permission and support throughout my study.

And finally, very special thank to my parents for their love, understanding and support throughout my study was undergone.



ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่ Copyright[©] by Chiang Mai University AII rights reserved